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| <b>PRE-APPEAL BRIEF REQUEST FOR REVIEW</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | <b>Docket Number:</b><br>P17145                |                                    |
| I hereby certify that this correspondence is being transmitted via the EFS-Web System to the USPTO on:<br><br><u>January 10, 2008</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <b>Application Number:</b><br>10/712,207       | <b>Filed:</b><br>November 12, 2003 |
| Signature: <u>/David Victor/</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | <b>First Named Inventor:</b><br>R. SHAH et al. |                                    |
| Typed or<br>Printed Name: <u>David W. Victor</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | <b>Art Unit:</b><br>2194                       | <b>Examiner:</b><br>Abdou K. Seye  |
| <p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal.</p> <p>The review is requested for the reason(s) stated on the attached five (5) sheet(s).<br/>Note: No more than five (5) pages may be provided.</p> <p>I am the:</p> <p><input type="checkbox"/> applicant/inventor <u>/David Victor/</u><br/>Signature</p> <p><input type="checkbox"/> assignee of record of the entire interest.<br/>See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB 96) <u>David W. Victor</u><br/>Typed or Printed Name</p> <p><input checked="" type="checkbox"/> attorney or agent of record.<br/>Registration Number <u>Registration No. 39,867</u> <u>(310) 553-7977</u><br/>Telephone Number</p> <p><input type="checkbox"/> attorney or agent acting under 37 CFR 1.34<br/>Registration number if acting under 37 CFR 1.34 <u>January 10, 2008</u><br/>Date</p> <p>NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required*.</p> |  |                                                |                                    |

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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|---------------|------------------------------------------------------------------------------------------------------|----------------|---------------|
| Applicant(s): | R. SHAH et al.                                                                                       | Examiner       | Abdou K. Seye |
| Serial No.    | 10/712,207                                                                                           | Group Art Unit | 2194          |
| Filed         | November 12, 2003                                                                                    | Docket No.     | P17145        |
| TITLE         | METHOD, SYSTEM, AND PROGRAM FOR INTERFACING WITH A NETWORK ADAPTOR SUPPORTING A PLURALITY OF DEVICES |                |               |

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**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Applicants request review of the rejection of claims 1, 2, 4, 5, 9-15, 17, 18, 22-29, 31, and 32 as anticipated (35 U.S.C. §102) by DiCorpo (U.S. Patent Pub. No. 2004/0139240).

With respect to claims 1 and 28, Applicants request review of the Examiner's finding that para. 80 of DiCorpo discloses the claim requirement of initializing a device interface driver to represent the device hardware as a virtual bus to an operating system and to represent to the operating system each device supported in the device hardware as a device attached to the virtual bus. (Final Office Action, pg. 5)

The cited para. 80 discusses initialization for LUN virtualization. On powerup, the system has no known state. The initialization procedure collects information for storage in the device state cache to enable LUN virtualization. Although the cited para. 80 discusses LUN virtualization, which creates a virtual representation for a hardware device in the form of a LUN object, nowhere does the cited para. 80 anywhere disclose or mention the claim requirements of representing device hardware including a plurality of devices as a virtual bus and representing to the operating system each device in the device hardware as a device attached to the virtual bus. Instead, the cited para. 80 discusses LUN virtualization, that introduces a virtual LUN object into a storage system component or device, such as a router. (DiCorpo, para. 36). The Examiner has not cited any part of DiCorpo disclosing the claim requirements concerning initializing a device interface driver to represent the device hardware as a virtual bus. In fact, the Examiner has not cited where DiCorpo anywhere mentions a "virtual bus" as claimed.

Applicant's further request review of the Examiner's finding in the Advisory Action, dated December 3, 2007, that para. 63 of DiCorpo discloses the claimed virtual bus. The cited para. 63 mentions that the system can be used in fibre-to-fibre routers and Internet SCSI (iSCSI) to SCSI applications, and that they system can be used according to other standards. Although the cited para. 63 mentions the iSCSI protocol, there is no disclosure or mention in the cited para.

63 of representing device hardware as a virtual bus and devices in the hardware as a device attached to the virtual bus.

Applicants further request review of the Examiner's finding that it is well known that an iSCSI driver is associated with a virtual bus. (Advisory Action). If the Examiner maintains that iSCSI protocol teaches a virtual bus to represent a hardware device having multiple devices, then Applicants submit that the Examiner must submit art disclosing this proposed extrapolation. Further, even if iSCSI concerns a virtual bus to route requests as the Examiner contends without support, the Examiner has not shown where the art discloses that this proposed iSCSI virtual bus is used to represent device hardware and that the devices included in the device hardware are represented to the operating system as attached to the virtual bus as claimed.

The Examiner cited para. 36 of DiCorpo as disclosing the claim requirement of generating one device object for each determined device in the device hardware, wherein each generated device object represents the determined device to the operating system. (Final Office Action, pg. 3). Applicants traverse.

The cited para. 36 mentions reducing data transfer errors through LUN virtualization by introducing a virtual LUN object into a storage system component or device, such as a router. A command filter and LUN monitor operate in combination to reduce data transfer errors arising from conflicting commands and task management directives in a multiple-initiator environment through creation of a virtual LUN object. The virtualization can be implemented in a storage system element, such as a router, in a manner that requires no configuration changes other than connection to supported hardware.

Although the cited para. 36 discusses introducing a virtual LUN object, there is no disclosure in the cited para. 36 of the claim requirement of generating one device object for each device in the device hardware to represent the determined device to the operating system. Nowhere does the cited para. 36 disclose determining devices within device hardware and then generating a device object, or a virtual LUN object in the case of para. 36, for each determined device within the device hardware. Instead, the cited para. 36 discusses creating a virtual LUN object as part of virtualization, not creating an object for each device determined to be in device hardware.

In other words, the cited virtual LUN of DiCorpo does not disclose a virtual bus representing a hardware device including devices, where each device in the hardware device

represented by the virtual device is represented by device objects that are represented to the operating system attached to the virtual bus.

Applicants submit that claims 14 and 26 are patentable over the cited art for the reasons discussed with respect to claims 1 and 28 because they substantially include the requirements of amended claims 1 and 28 and additionally recite the device hardware as a network adaptor including devices.

With respect to claims 2, 15, and 29, Applicants request review of the Examiner's findings that paras. 41 and 114 of DiCorpo (Final Office Action, pg. 3) disclose the claim requirements of reporting to the operating system that the determined devices are dependent on the virtual bus, wherein in response to being notified that the determined devices and virtual bus are dependent, the operating system will not remove the device interface driver representing the virtual bus until the device drivers associated with the determined devices are removed.

The cited para. 41 mentions that a storage system may perform one or more of several functions to improve availability, data integrity, and performance. The system can protect the state of the drive when engaged in a data transfer or media movement commands with a primary initiator. The system can avoid unnecessary error recovery and task management traffic, and maintain optimum performance, by supplying expected management data within expected timing specifications to secondary initiators.

The cited para. 114 mentions that the storage systems commands that report drive state and/or commands that change drive state can be emulated. Commands that change media position, read or write the media access memory, or read or write media may conflict or may be emulated, depending on the amount of virtualization implemented in the embodiment. The virtual LUN can support a different subset of commands than the physical device since the operating system and applications can be written specifically to support the virtual device. The physical device can be one or more disk devices, one or more tape devices, or a combination.

The cited paras. 14 and 114 discuss storage system operations and that the storage systems report drive state or commands can be emulated, and that the LUN can support a different subset of commands than the physical device. However, there is no disclosure of the claim requirement of reporting to the operating system that the determined devices are dependent on the virtual bus. Further, there is no disclosure in the cited paragraphs that in response to being notified that the determined devices and virtual bus are dependent, the operating system will not

remove the device interface driver representing the virtual bus until the device drivers associated with the determined devices are removed. There is no disclosure of notifying the operating system that devices and a virtual bus are dependent.

Applicants request review of the finding in the Advisory Action that FIG. 5 of DiCorpo teaches processor operations including devices and controller that communicate with busses for accessing hardware resources. The cited FIG. 5 shows devices connected to a switch/hub and that a router has a bus with connected controllers and a processor. However, this cited FIG.5 nowhere discloses reporting devices dependent on a virtual bus and that the driver representing the virtual bus is not removed until the device drivers associated with the determined devices are removed.

With respect to claims 4, 17, and 31, which depend from claims 1, 14, and 28, respectively, Applicant's request review of the Examiner finding that para. 62 and router 510 disclose that the hardware device comprises a network adaptor and wherein each device available in the network adaptor supports a protocol engine for different communication protocols. (Final Office Action, pgs. 3-4)

The cited para 62 discusses router 510 that transfers commands and data to and from hosts and devices. The router 510 supports different storage devices. Nowhere does the cited para. 62 disclose that devices included in the network adaptor hardware, for which device objects are generated, comprise protocol engines. Instead, the cited paragraph discusses how a router supports transfer of data and commands to and from a host and storage devices.

Applicants request review of the Examiner's finding in the Advisory Action that para. 66 and FIG. 5 of DiCorpo disclose these claim requirements. The cited para. 66 mentions that a SCSI host on a SCSI bus issues commands so that information is passed through the router to a Fibre Channel SAN. The SCSI host issues a command to the router that interprets and buffers the command. The processor programs the router Fibre Channel controller to process the transaction.

The cited para. 66 and FIG. 5 show a router receiving commands from a host, where the router has controllers for different protocols and a processor attached to an internal bus. Although the cited DiCorpo shows a router having actual devices attached to a bus, this does not disclose that the bus 532 is a virtual bus representing device hardware to which device objects representing devices in the hardware, such as the FC and SCSI controllers in DiCorpo, are

attached. Moreover, nowhere do the cited para. 66 and FIG. 5 disclose that objects are generated for the Fibre Channel and SCSI controllers or that they are included in device hardware represented by a virtual bus. .

Applicants request review of the rejection of claims 3, 16, and 30 as obvious (35 U.S.C. § 103) over DiCorpo in view of Malueg (U.S. Patent Pub. No. 2004/0003300).

With respect to claims 3, 16, and 30, Applicants request review of the Examiner's finding that para. 44 and FIGs. 10, 11, and 12 of Malueg teach the claim requirement of reporting to the operating system that a power state of the virtual bus represented by the device interface driver cannot be altered until all the device drivers representing devices attached to the virtual bus have their power state similarly altered. (Final Office Action, pg. 8, Advisory Action)

The cited para. 44 mentions that a power manager arbitrates requests to change state received from drivers 200, 202, and 204 and applications 220 and 222. A driver will not be allowed to transition a component device to a lower state if an application has requested a higher state. The cited FIGs. 10, 11, and 12 discuss device power requirements and handling a request to lower power state that conflicts with device power requirements.

Although the cited Malueg discusses adjusting the power state of devices, nowhere does the cited Malueg anywhere teach that a power state cannot be altered until all the device drivers representing devices attached to the virtual bus have their power state similarly altered. There is no mention in the cited Malueg that the power state of one device cannot be altered until the power state of other devices in the same hardware device have their power state altered. Instead, the cited Malueg discusses whether a power state transition exceeds a high or low requirement for the device.

Because Malueg does not teach the claim requirements for which it is cited, combining Malueg with DiCorpo does not overcome the noted deficiencies of DiCorpo.

Dated: January 10, 2008

By: /David Victor/

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